



Risk assessment and method statement

Solar PV installation RAMS

Install roof-mounted solar PV and battery storage. Pre-filled with typical hazards, controls and sequence: edit it for this site.

PROJECT

SITE ADDRESS			
ACTIVITY		RAMS REFERENCE	
Install roof-mounted solar PV and battery storage			
CONTRACTOR CARRYING OUT THE WORK		PRINCIPAL CONTRACTOR	
PREPARED BY	APPROVED BY	REVISION	DATE

Revision record

Reissue and rebrief when the sequence, the programme, the team or the conditions change. If you would have written it differently had you known, it needs a new revision.

REV	DATE	WHAT CHANGED	BY

THE WORK

The activity, the place and the people

Pre-filled for this kind of work. Make every line specific to this site: this sequence, this access, these people, this weather.

Scope of the activity

What is being done, and what is not included.

MHSWR REGULATION 3(1)

Install a [kWp] roof-mounted solar PV array of [number] panels on [roof slope or area], with mounting kit, DC cabling, isolators, [inverter / microinverters], [battery storage of kWh] and the AC connection at [consumer unit or board]. Testing, commissioning and certification. Not included: [list any exclusions].

Location and access

Where on site, how people and materials get there, and the restrictions.

Site access via [gate]. Scaffold with edge protection to [elevations], handed over before use. Panels raised by [ladder hoist / scaffold hoist / crane] at [position] and stored at [area]. Footpath on [elevation] kept open or closed by agreement. Power off [date and time]. Hours [08:00 to 17:00].

Programme and interfaces

When the work runs, and who else is working nearby.

CDM REGULATION 15(2)

START DATEDURATIONWORKING HOURS

INTERFACES WITH OTHER TRADES

Scaffolding contractor for access and handover. Building occupants: [occupied / empty], told when power will be off. Network operator for [G98 notification / G99 application]. Roofer for any repairs to the covering. Other trades kept outside the exclusion zone.

Documents this RAMS relies on

Roof survey and structural assessment [ref]. Asbestos survey [ref]. System design and string schedule [ref]. Scaffold handover certificate. Lift plan for any crane lift, network operator paperwork, battery installation instructions and rescue plan.

The team, and their competence

CDM REGULATION 8

ROLE	NAME	CARD, TICKET OR TRAINING NEEDED	CONTACT
Electricians		Qualified electrician, competent in PV and battery systems, with an ECS card for the grade of work.	
Roof installers		CSCS card for their occupation, and experienced in roof work, with trainees supervised.	
Supervisor		Experienced installer, on the roof or at the job throughout.	
Designer		Competent in solar PV design, to assess the building and roof before the system is designed.	
Hoist and crane lifts		Trained in the hoist; crane lifts planned by a competent person.	
Asbestos		Asbestos awareness training for everyone liable to disturb it.	

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METHOD STATEMENT

The sequence of work

The order the team will work in on the day, with the controls built into each stage. If the sequence changes on site, revise the RAMS and brief it again.

STAGE	WHAT IS DONE, AND HOW	CONTROLS AT THIS STAGE	BY
Survey and design	Survey the roof from below or the scaffold: covering, structure, fragile areas, edges, asbestos and power lines. Design the array, cable routes, inverter and battery positions, and confirm the network operator route.	Building assessed by a competent person; G99 application approved before installation where needed, otherwise G98 notification planned.	Designer
Before the day	Book the scaffold, hoist and any crane. Agree working areas, parking and the electrical shutdown with the client, and tell occupants when power will be off.	Scaffold designed for the roof; lift plan for any crane lift; RAMS approved before work starts.	Contracts manager
Arrival and briefing	Sign in, attend the induction, then brief the team on this RAMS, the fragile areas, live DC and the rescue plan. Check the hoist, tools and test equipment.	Briefing signed against this revision; scaffold handover certificate seen; pre-use checks recorded.	Supervisor
Set up below the roof	Set up the exclusion zone, the hoist area and somewhere to store panels. Protect the footpath and any access the occupants need.	Physical barriers, not tape; panels stored flat and secured; no lifting over the public.	Supervisor
Fix roof hooks and rails	Lift tiles or slates, fix the roof hooks to the rafters, cut tiles to fit round them and fix the rails, working from the scaffold or roof ladders.	Edge protection in place; fragile areas protected; tiles cut by hand or with dust controls.	Installers
Raise and fix panels	Raise the panels by hoist, move them along the scaffold and fix them to the rails with the specified clamps.	Two people per panel; wind checked; nobody under a panel being raised.	Installers
Connect the DC strings	Connect the panels into strings and run the DC cables to the isolator and inverter, keeping each string end isolated until it is terminated.	DC treated as live; positive and negative never exposed together; correct crimping tool; warning signs.	Electrician
Inverter and battery	Fix the inverter and battery in the agreed positions, run the cables and fit isolators and labels. Connect the battery last.	Battery location to PAS 63100; battery treated as live; insulated tools; two-person lift.	Electrician
Connect to the AC supply	Isolate the supply, lock off and prove dead, then connect the inverter circuit at the consumer unit or distribution board.	Safe isolation recorded; every source of supply found; power restored only when the work is complete.	Electrician
Commission and hand over	Test and commission the system, fit the warning labels, and complete the certificates. Clear the roof and the area below, and hand over with the documents.	Certified to BS 7671; labels fitted; network operator paperwork done; scaffold struck only after the roof is checked.	Supervisor

CDM REGULATION 15(2): PLAN, MANAGE AND MONITOR THE WORK

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RISK ASSESSMENT

Hazards, controls and the risk that remains

Each significant hazard rated before and after its controls, as likelihood times severity. The ratings are typical: check them for this site.

	LIKELIHOOD		SEVERITY		
	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
	1	2	3	4	5

1 to 4 low
 5 to 12 medium
 15 to 25 high

HAZARD	WHO COULD BE HARMED, AND HOW	RISK BEFORE	CONTROLS	RISK AFTER	BY
Falls from the roof edge	Installers fixing rails and panels, and anyone else working on the roof.	4 x 5 = 20 High	- Scaffold with a boarded platform, double guard-rails and toe boards along the eaves of the roof slope being worked on. - Edge protection extending 2 metres past each side of the work area, as CITB guidance advises, with gable end protection where the array is closer than that. - Scaffold handover certificate in place, and inspected at least every 7 days and after high winds.	1 x 5 = 5 Med	Supervisor
Falls through fragile roofs and rooflights	Installers on sheeted commercial and farm roofs, and near rooflights on any roof.	4 x 5 = 20 High	- Roof treated as fragile until a competent person confirms it is not; fragile areas marked on the survey. - Nobody stands on or works within 2 metres of a fragile surface unless barriers or covers stop them reaching it. - Staging to cross the roof, safety nets below where needed, and warning notices at each approach.	1 x 5 = 5 Med	Supervisor
Slipping on the roof covering	Installers on tiles, slates, sheets and membranes, worse when wet, icy or covered in moss.	3 x 4 = 12 Med	- Roof ladders or staging anchored over the ridge, and no walking on fitted panels. - Roof checked for frost, moss and wet before anyone goes on it, and work stopped when the weather puts people at risk.	2 x 4 = 8 Med	
Getting panels onto the roof	The team loading out and anyone below, from panels dropped while being raised.	3 x 4 = 12 Med	- Panels raised by ladder hoist, scaffold hoist or crane, not carried up a ladder. - Lifting equipment thoroughly examined under LOLER, with the report in date; lift plan for any crane lift. - Exclusion zone below the lift, and nobody under a panel being raised.	1 x 4 = 4 Low	Supervisor
Handling panels on the roof	Installers carrying and positioning large panels on a slope or at the edge.	3 x 3 = 9 Med	- Panels moved along the scaffold platform rather than across the roof wherever possible. - Two people to carry and place each panel, with a clear route and stacks kept within the scaffold loading. - Panels kept in their packaging or secured flat until each one is fixed.	2 x 3 = 6 Med	
Wind catching panels	Installers carrying panels at height, where a gust can pull a person off balance.	3 x 4 = 12 Med	- Forecast checked each morning and wind checked at roof level before panels go up. - Panel handling stopped when wind makes panels hard to control; loose panels and offcuts secured at the end of each day.	2 x 4 = 8 Med	
Falling materials and tools	The public, residents, other trades and the team below the roof.	3 x 4 = 12 Med	- Toe boards on the scaffold, and brick guards where materials are stacked above toe board height. - Nothing thrown or dropped from the roof; packaging and offcuts lowered in bags or by hoist. - Exclusion zone below the work, with the footpath closed or protected where the public pass.	1 x 4 = 4 Low	
Roof structure overloaded or damaged	Installers on the roof, and occupants below a roof that cannot take the extra load.	2 x 4 = 8 Med	- Building assessed by a competent person before design, including the roof structure and fixings. - Mounting kit approved to work together and fixed to the manufacturer's instructions and the MCS standard. - Panels and rails stacked in small loads spread over the structure, never on a fragile area.	1 x 4 = 4 Low	Designer

MHSWR REGULATION 3(6): WITH FIVE OR MORE EMPLOYEES, RECORD THE SIGNIFICANT FINDINGS

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RISK ASSESSMENT, CONTINUED

More hazards, and those specific to this site

HAZARD	WHO COULD BE HARMED, AND HOW	RISK BEFORE	CONTROLS	RISK AFTER	BY
Electric shock from live DC cabling	Installers connecting panels and strings, which are live in daylight and cannot be switched off.	3 x 5 = 15 High	- Every PV conductor treated as live in daylight; tested for voltage before touching any part of the system. - Strings connected so that positive and negative are never exposed together; ends kept in an isolation box until connected. - Where live working cannot be avoided, insulated gloves and tools, or the array covered with opaque sheeting. - Warning signs and barriers while live DC cables are run.	1 x 5 = 5 Med	Electrician
DC arcs and fire from poor connections	Installers and occupants, from connectors pulled apart under load or badly crimped.	3 x 5 = 15 High	- DC connectors never used as a switch; AC off and DC isolator opened before any connector is separated. - Connectors assembled with the correct tools and procedure, as the MCS standard requires, and only mated with the same make and type. - Connectors kept out of standing water, and arc fault detection in the inverter enabled where it has one.	1 x 5 = 5 Med	Electrician
Connecting to the AC supply	Electricians working at the consumer unit or distribution board, and occupants of the building.	3 x 5 = 15 High	- Safe isolation at the point of supply: isolate, lock off, post a notice, then prove dead with a proved tester. - Every source of supply found, including an existing PV system, generator or battery, before work starts. - Work tested and certified to BS 7671 before the system is switched on.	1 x 5 = 5 Med	Electrician
Battery storage installation	Installers handling and connecting heavy battery units, and occupants of the building.	3 x 5 = 15 High	- Battery treated as live at all times; connected last, to the maker's instructions, with insulated tools. - In homes, battery location agreed to PAS 63100: outdoors where practicable, never in a loft or roof void. - Units moved by trolley or two-person lift, to the data sheet weight. - A dropped or damaged unit is not fitted; it is kept outdoors, away from the building, and returned.	1 x 5 = 5 Med	Electrician
Working in lofts and roof spaces	Installers running cables and fixing equipment in roof spaces.	3 x 3 = 9 Med	- Boards laid across joists to work from, so nobody steps through a ceiling. - Loft checked for bare wires and damaged cables before work, and lighting provided. - Time in hot lofts limited in summer, with water and breaks.	2 x 3 = 6 Med	
Asbestos in older roofs and roof spaces	Installers on fibre cement sheet roofs, and in lofts, soffits and flues of older buildings.	3 x 5 = 15 High	- Asbestos survey checked before work; where there is doubt, suspect material assumed to be asbestos. - No drilling or cutting into suspect sheets or boards; fixings and routes moved or the material dealt with first. - Asbestos awareness training for the whole team.	1 x 5 = 5 Med	
Dust from cutting tiles and drilling	Installers cutting tiles for hooks and drilling through walls for cables.	3 x 3 = 9 Med	- Tiles cut with a hand cutter where possible, or a saw with water or on-tool extraction. - On-tool extraction for drilling through masonry, with FFP3 RPE on top of the dust controls.	2 x 3 = 6 Med	
Overhead power lines	Installers raising panels, rails and ladders near lines at the roof or the property boundary.	2 x 5 = 10 Med	- Lines identified at the survey and the network operator contacted where the work or a lift comes close. - No panels, rails or metal ladders raised within reach of a live line.	1 x 5 = 5 Med	
Rescue after a fall or shock	An installer injured on the roof, suspended in a harness or hurt by an electric shock.	2 x 5 = 10 Med	- Written rescue plan before work starts, with equipment on site and the team shown how to use it. - Nobody works alone on the roof or on electrical connections; first aider on site.	1 x 5 = 5 Med	

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EQUIPMENT

Plant, equipment and PPE

Plant and equipment

Each item, the checks and certificates it needs, and who may operate it.

PUWER 1998, LOLER 1998

ITEM	CHECKS AND CERTIFICATES	OPERATOR COMPETENCE
Ladder hoist or scaffold hoist	LOLER thorough examination in date; pre-use check daily.	Trained operator
Roof ladders and staging	Checked before use, anchored over the ridge.	Installers
Voltage tester and proving unit	Rated for the DC voltage; proved before and after each test.	Electrician
DC connector crimping tool	The tool the connector maker specifies; checked before use.	Electrician
Insulated hand tools	Checked for damage to the insulation before use.	Electrician
Battery trolley	Rated for the battery weight; checked before use.	Installers

Personal protective equipment

PPE is the last line of defence, after the controls above. Specify the type, not just the item.

PPE AT WORK REGULATIONS 1992

ITEM	NEEDED	TYPE AND SPECIFICATION
Safety helmet	☒	Below the roof and on the scaffold
Safety footwear	☒	Safety boots with flexible grip sole
High-visibility clothing	☒	At ground level and loading out
Gloves	☒	Handling gloves; insulating gloves for DC
Eye protection	☒	Cutting, drilling and live parts
Hearing protection	☐	
Respiratory protection Type, and face-fit tested	☒	FFP3 for cutting tiles and drilling
Harness or restraint Anchor points identified	☒	Where collective protection does not cover

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CONTROLS

Substances, permits, emergencies and the environment

Hazardous substances

Each substance and its COSHH assessment.

COSHH 2002, REGULATION 6

SUBSTANCE	COSHH ASSESSMENT REFERENCE	CONTROLS
Dust from cutting tiles and drilling masonry	[ref]	Hand cutting or on-tool water or extraction; FFP3 RPE.
Sealant for cable entries and roof penetrations	[ref]	Safety data sheet followed; gloves; ventilation indoors.

Permits and plans

PERMIT OR PLAN	NEEDED	REFERENCE
Hot work permit	☐	
Permit to work	☒	
Permit to dig or break ground	☐	
Confined space entry	☐	
Lift plan	☒	
Temporary works design	☐	

Emergency and rescue

First aid, fire, and how someone is rescued.
The rescue plan belongs in the RAMS, not after it.

Rescue plan for an installer injured on the roof. Electric shock procedure briefed: isolate where it is safe to, do not touch the person until they are clear of the supply, call 999. First aider on site, and the nearest accident and emergency department named on the briefing.

Environment and neighbours

Dust, noise, vibration, waste, spills and hours of work.

Panel packaging, pallets and offcuts removed from site and recycled where possible. Any old panels or batteries returned through a take-back route, not a general skip. Asbestos waste handled under the asbestos plan. Roof left watertight and secure each night.

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DC AND ROOF CHECK

Roof access and DC isolation check

Fill in before work starts each day, and again before any DC or battery connection. Work does not start until every line is acceptable.

CHECK	WHAT ACCEPTABLE LOOKS LIKE	RESULT	ACTION TAKEN AND BY WHOM
Scaffold and edge protection	Handover certificate in place; guard-rails along the eaves and 2 metres past the work		
Fragile areas	Rooflights and fragile sheets covered or barriered; warning notices posted		
Area below	Exclusion zone set; no lifting over the public		
Hoist	LOLER report in date; pre-use check done		
Weather	Wind checked at roof level; roof not wet or icy		
DC string ends	Isolated and labelled until terminated; positive and negative never exposed together		
DC isolator and AC supply	AC off and DC isolator open before any connector is separated		
Battery	Location agreed; connected last, to the manufacturer's instructions		
Test equipment	Rated for the DC voltage; proved before and after use		
Rescue	Rescue kit on site; team briefed; nobody working alone		

WORK AT HEIGHT REGULATIONS 2005, REGULATIONS 4, 6 AND 9; ELECTRICITY AT WORK REGULATIONS 1989, REGULATIONS 12 AND 14; MCS MIS 3002; BSI PAS 63100.

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Briefed before the work starts

DATE AND TIME

A SIGNATURE AGAINST A REVISION, ON A DATE, BEFORE THE WORK STARTED, IS HOW A BRIEFING IS EVIDENCED

A pre-filled starting point, not legal advice. Edit it for the site and have it approved.